

## OMEGA: A Gravitational Wave MIDE<sub>X</sub> Mission

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ABSTRACT: Among the Low Frequency (LF) gravitational wave sources that are of astronomical interest are white dwarf binaries, neutron star binaries, massive black hole binaries, and compact stars spiraling into massive black holes. A mission to detect these sources has been proposed to NASA as a possible member of its low-cost, near-term MIDE<sub>X</sub> mission series. This mission utilizes six tiny miniprobes in high Earth orbit to produce a sensitive Michelson interferometer with million-kilometer arms, yielding a strain sensitivity below  $10^{-21}$  at periods longer than a hundred seconds. At this sensitivity, known binary stars will be seen and plausible unknown massive black hole events will be searched for.